

WHAT IS CLAIMED IS:

1. An autofocus apparatus comprising:

a photographing optical system having at least a focus adjusting lens disposed movably and an optical element for splitting light beams inputted and emerging from an object;

a first focusing estimating device having a first optical system for forming an image corresponding to the object by inputting one light beam of the light beams split by said optical element, a first imaging element for picking up the image obtained by said first optical system and converting it into an electric signal, and a first data creating device for selecting a proper frequency component from the electric signal obtained by said first imaging element and, on the basis of a level of this frequency component, creating an item of data for focusing the image on said first imaging element upon the object;

a second focusing estimating device having a second optical system for forming an image corresponding to the object by inputting the other light beam of the light beams split by said optical system, an image re-forming optical system for respectively re-forming, into images, the light beams passing through portions with different pupils among the light beams for forming the image formed by said second optical system, a second imaging element for

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first focusing estimating device and from said second focusing estimating device is useless, selects the other item of data.

5 4. The autofocus apparatus according to claim 1,
wherein said focusing estimation selecting device
selects any one item of data of two items of data from
said first focusing estimating device and from said
second focusing estimating device with reference to
10 data for specifying a depth of field.

 5. The autofocus apparatus according to claim 4,
wherein said photographing optical system has a stop
disposed posterior to said optical element, and
15 the data for specifying the depth of field is an
aperture value of said stop.

 6. The autofocus apparatus according to claim 4,
wherein said photographing optical system has a
20 variable magnification lens disposed movably, and
 the data for specifying the depth of field are
about one or both of positions of said focus adjusting
lens and of said variable magnification lens.

25 7. The autofocus apparatus according to claim 4,
wherein the data for specifying the depth of field are
about whether or not optical accessory is attached

thereto and about a kind of the optical accessory.

8. The autofocus apparatus according to claim 1,
further comprising:

5 an object dimension calculating device for
calculating a real dimension of the object on the basis
of a distance from an image side principal point of
said photographing optical system to an image surface,
a distance from an object-side principal point of said
10 photographing optical system to the object, and a
dimension of the object on said first imaging element;

 an object dimension setting device for setting a
dimension of the object; and

 a focusing object controlling device for comparing
15 the object real dimension calculated by said object
dimension calculating device with the object dimension
set by said object dimension setting device, and
controlling said first focusing estimating device and
said second focusing estimating device on the basis of
20 a result of this comparison.

9. The autofocus apparatus according to claim 8,
wherein said focusing object controlling device
controls said first focusing estimating device and said
25 second focusing estimating device so as to focus on the
relevant object when the object real dimension
calculated by said object dimension calculating device

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optical systems and said plurality of second imaging elements are capable of picking up a plurality of portions of the image formed by said second optical system, and

5 said object dimension calculating device is capable of calculating the real dimension of respective objects corresponding to the plurality of portions of the image formed by said second optical system.

10 14. The autofocus apparatus according to claim 8, further comprising:

 an object dimension displaying device for displaying, on a display medium, the object real dimension calculated by said object dimension
15 calculating device.

 15. The autofocus apparatus according to claim 1, further comprising:

 a focus area setting device for setting a size of
20 a focus area in which to create the data for focusing the image on a relevant area upon the object in an area on said first imaging element,

 wherein said first focusing judging device creates the data for focusing the image on said first imaging
25 element upon the object, with respect to the focus area having the size set by said focus area setting device.

16. The autofocus apparatus according to claim
15, wherein said focus area setting device sets the
size of the focus area of said first focusing
estimating device larger than the focus area of said
5 second focusing estimating device.

17. The autofocus apparatus according to claim
15, wherein said focus area setting device sets the
size of the focus area of said first focusing
10 estimating device smaller than the focus area of said
second focusing estimating device.

18. The autofocus apparatus according to claim
15, wherein a plurality of focus areas are previously
15 set in said second focusing estimating device,

said focus area setting device detects the focus
areas adjacent to each other and having substantially
the same distance from said photographing optical
system to the object corresponding to the image on the
20 relevant focus area out of the plurality of focus areas
on the basis of pieces of data respectively created
about the plurality of focus areas by said second
focusing estimating device, and sets a size of the
focus area of said first focusing estimating device in
25 accordance with a total size of these focus areas.

19. The autofocus apparatus according to claim

15, further comprising:

a focus size inputting device for inputting data about the size of the focus area,

wherein said focus area setting device sets the
5 size of the focus of the said first focusing estimating device on the basis of the data about the focus area size inputted by said focus size inputting device.

20. The autofocus apparatus according to claim 1,
10 further comprising:

a focus position inputting device for inputting data about a position of the focus area in which to create the data for focusing the object corresponding to the image on the relevant area in an area on said
15 first imaging element,

wherein said first focusing judging device and said second focusing judging device create the data for focusing the image on said first imaging element upon the object with respect to the focus area existing in
20 the position inputted by said focus position inputting device.

21. The autofocus apparatus according to claim 20, wherein said focusing estimation selecting device
25 selects only the data given from said first focusing estimating device when the focus area position inputted by said focus position inputting device is a position

in which the image can not be detected by said image re-forming optical system.

22. The autofocus apparatus according to claim
5 15, further comprising:

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10 a focus area displaying device for displaying, on a display medium, the data by which the focus area of said first focusing estimating device can be identified when said focusing estimation selecting device selects
15 the data obtained by said first focusing estimating device, and displaying the data by which the focus area of said second focusing estimating device can be identified when selecting the data obtained by said second focusing estimating device.

23. The autofocus apparatus according to claim 1,
wherein said photographing optical system, said first optical system and said second optical system are constructed so that the image formed by said first
20 optical system has a size different from a size of the image formed by said second optical system.

24. An autofocus apparatus comprising:
25 a photographing optical system having at least a focus adjusting lens disposed movably, and an image forming lens for forming an image corresponding to an object by inputting light beams emerging from the

object;

an imaging element for picking up an image obtained by said photographing optical system and converting it into an electric signal;

5 a data creating device for selecting a proper frequency component from the electric signal obtained by said imaging element, and creating an item of data for focusing the image on said imaging element upon the object on the basis of a level of this frequency
10 component;

a moving device for moving said focus adjusting lens on the basis of the data created by said data creating device;

a distance measuring device for measuring a
15 distance from an object-side principal point of said photographing optical system to the object;

an object dimension calculating device for calculating a real dimension of the object on the basis of the distance, measured by said distance measuring
20 device, from an object-side principal point of said photographing optical system to the object, a distance from an image side principal point of said photographing optical system to an image surface, and a dimension of the object on said first imaging element;

25 an object dimension setting device for setting a dimension of the object; and

a focusing object controlling device for comparing

the object real dimension calculated by said object dimension calculating device with the object dimension set by said object dimension setting device, and controlling an area in which said data creating device
5 creates the data for focusing the image on said first imaging element upon the object on the basis of a result of this comparison.

25. An autofocus apparatus comprising:

10 a photographing optical system having at least a focus adjusting lens disposed movably, and an optical element for splitting light beams inputted and emerging from an object;

15 a first optical system for forming an image corresponding to the object by inputting one light beam of the light beams split by said optical element;

a first imaging element for picking up the image obtained by said first optical system;

20 a second optical system for forming the image corresponding to the object by inputting the other light beam of the light beams split by said optical element;

25 an image re-forming optical system for respectively re-forming, into images, the light beams passing through portions with different pupils among the light beams for forming the image formed by said second optical system;

a second imaging element for picking up the images obtained by said image re-forming optical system;

a data creating device for creating an item of data for focusing the image on said first imaging
5 element upon the object on the basis of a positional deviation between the images on said second imaging element;

a moving device for moving said focus adjusting lens on the basis of the data created by said data
10 creating device;

an object dimension calculating device for calculating a real dimension of the object on the basis of a distance from an image side principal point of said photographing optical system to an image surface,
15 a distance from an object-side principal point of said photographing optical system to the object, and a dimension of the object on said first imaging element;

an object dimension setting device for setting a dimension of the object; and

20 a focusing object controlling device for comparing the object real dimension calculated by said object dimension calculating device with the object dimension set by said object dimension setting device, and controlling an area in which said data creating device
25 creates the data for focusing the image on said first imaging element upon the object on the basis of a result of this comparison.

26. A lens barrel attachable to a camera
comprising:

a photographing optical system having at least a
focus adjusting lens disposed movably, and an optical
5 element for splitting light beams inputted and emerging
from an object;

a first optical system for forming an image
corresponding to the object by inputting one light beam
of the light beams split by said optical element; and
10 a moving device for moving said focus adjusting
lens,

said camera comprising:

a first focusing estimating device having a first
imaging element for picking up the image obtained by
15 said first optical system and converting it into an
electric signal, and a first data creating device for
selecting a proper frequency component from the
electric signal obtained by said first imaging element
and, on the basis of a level of this frequency
20 component, creating an item of data for focusing the
image on said first imaging element upon the object;

a second focusing estimating device having a
second optical system for forming an image
corresponding to the object by inputting the other
25 light beam of the light beams split by said optical
element, an image re-forming optical system for
respectively re-forming, into images, the light beams

passing through portions with different pupils among
the light beams for forming the image formed by said
second optical system, a second imaging element for
picking up the images obtained by said image re-forming
5 optical system, and a second data creating device for
creating an item of data for focusing the image on said
first imaging element upon the object on the basis of a
positional deviation between the images on said second
imaging element;

10 a focusing estimation selecting device for
selecting at least one item of data out of the data
given from said first focusing estimating device and
the data from said second focusing estimating device;
and

15 a controlling device of controlling said moving
device on the basis of the data selected by said
focusing estimation selecting device.

20 27. A lens barrel attachable to a camera body
having a first focusing estimating device for creating
focusing data for focusing an image on an imaging
surface upon an object on the basis of a level of a
frequency component selected from an electric signal
obtained by an image formed on the imaging surface,

25 said lens barrel comprising:

a photographing optical system having a focus
adjusting lens disposed movably, a beam splitting

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element for splitting light beams incident on said focus adjusting lens and emerging from the object, and a first image forming lens for forming one light beam of the light beams split by said beam splitting element
5 into an image, said photographing optical system guiding the light beam incident on said first image forming lens and emerging from the object onto the imaging surface;

10 a second focusing estimating device having a second image forming lens for forming the other light beam of the light beams split by said beam splitting element into an image, at least one pair of image re-forming lenses for respectively re-forming, into
15 images, the light beams emerging from the object which beams have been image-formed by said second image forming lens, and an imaging element for picking up the images obtained by at least said one pair of image re-forming lenses, said second focusing estimating device creating an item of focusing data for focusing the
20 image on the imaging surface upon the object on the basis of an imaging positional deviation on said imaging element between the images obtained by at least said one pair of image re-forming lenses; and

25 a moving device for moving said focus adjusting lens on the basis of the focusing data created by said first focusing estimating device or said second focusing estimating device.

28. The lens barrel according to claim 27,
further comprising:

a selecting device for selecting at least one of
said first focusing estimating device and said second
5 focusing estimating device,

wherein said moving device moves said focus
adjusting lens on the basis of the focusing data
created by said focusing estimating device selected by
said selecting device.

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29. A lens barrel attachable to a camera body for
generating an electric signal based on an image formed
in an imaging surface,

said lens barrel comprising:

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a photographing optical system having a focus
adjusting lens disposed movably, a beam splitting
element for splitting light beams incident on said
focus adjusting lens and emerging from an object, and a
first image forming lens for forming one light beam of
the light beams split by said beam splitting element
20 into an image, said photographing optical system
guiding the light beam incident on said first image
forming lens and emerging from the object onto the
imaging surface;

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a first focusing estimating device for creating
focusing data for focusing an image on the imaging
surface upon the object on the basis of a level of a

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frequency component selected from the electric signal;

5 a second focusing estimating device having a
second image forming lens for forming the other light
beam of the light beams split by said beam splitting
element into an image, at least one pair of image re-
forming lenses for respectively re-forming, into
images, the light beams emerging from the object which
beams have been image-formed by said second image
forming lens, and an imaging element for picking up the
10 images obtained by at least said one pair of image re-
forming lenses, said second focusing estimating device
creating an item of focusing data for focusing the
image on the imaging surface upon the object on the
basis of an imaging positional deviation on said
15 imaging element between the images obtained by at least
said one pair of image re-forming lenses;

a selecting device for selecting at least one of
said first focusing estimating device and said second
focusing estimating device; and

20 a moving device for moving said focus adjusting
lens on the basis of the focusing data created by
focusing estimating device selected by said selecting
device.

25 30. A lens barrel according to claim 28, wherein
said selecting device, if the imaging positional
deviation detected by said positional deviation

detecting device is under a predetermined value,
selects said first focusing estimating device and, if
larger than the predetermined value, selects said
second focusing estimating device.

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31. The lens barrel according to claim 29,
wherein said selecting device, if the imaging
positional deviation detected by said positional
deviation detecting device is under a predetermined
value, selects said first focusing estimating device
and, if larger than the predetermined value, selects
said second focusing estimating device.

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32. A lens barrel attachable to a camera body
containing identification data indicating whether to
have a first focusing estimating device for creating an
item of focusing data for focusing an image on an
imaging surface upon an object on the basis of a level
of a predetermined frequency component selected from an
electric signal obtained by an image formed on the
imaging surface,

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said lens barrel comprising:

a photographing optical system having a focus
adjusting lens disposed movably, a beam splitting
element for splitting light beams incident on said
focus adjusting lens and emerging from an object, and a
first image forming lens for forming one light beam of

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the light beams split by said beam splitting element into an image, said photographing optical system guiding the light beam incident on said first image forming lens and emerging from the object onto the
5 imaging surface;

a second focusing estimating device having a second image forming lens for forming the other light beam of the light beams split by said beam splitting element into an image, at least one pair of image re-
10 forming lenses for respectively re-forming, into images, the light beams emerging from the object which beams have been image-formed by said second image forming lens, and an imaging element for picking up the images obtained by at least said one pair of image re-
15 forming lenses, said second focusing estimating device creating an item of focusing data for focusing the image on the imaging surface upon the object on the basis of an imaging positional deviation on said imaging element between the images obtained by at least
20 said one pair of image re-forming lenses;

a judging device for judging whether or not said camera body has said first focusing estimating device on the basis of the identification data;

a selecting device for selecting, if said judging
25 device judges that said camera body does not have said first focusing estimating device, said second focusing estimating device, and selecting, if said judging

5 a moving device for moving said focus adjusting
lens on the basis of the focusing data created by
focusing estimating device selected by said selecting
device.

20 34. A camera comprising:

a camera body for generating an electric signal
based on an image form on an imaging surface;

a lens barrel including a photographing optical
system having a focus adjusting lens disposed movably,

25 a beam splitting element for splitting light beams
incident on said focus adjusting lens and emerging from
an object, and a first image forming lens for forming

one light beam of the light beams split by said beam
splitting element into an image, said photographing
optical system guiding the light beam incident on said
first image forming lens and emerging from the object
5 onto the imaging surface;

a first focusing estimating device for creating
focusing data for focusing an image on the imaging
surface upon the object on the basis of a level of a
frequency component selected from the electric signal;

10 a second focusing estimating device having a
second image forming lens for forming the other light
beam of the light beams split by said beam splitting
element into an image, at least one pair of image re-
forming lenses for respectively re-forming, into
15 images, the light beams emerging from the object which
beams have been image-formed by said second image
forming lens, and an imaging element for picking up the
images obtained by at least said one pair of image re-
forming lenses, said second focusing estimating device
20 creating an item of focusing data for focusing the
image on the imaging surface upon the object on the
basis of an imaging positional deviation on said
imaging element between the images obtained by at least
said one pair of image re-forming lenses;

25 a selecting device for selecting at least one of
said first focusing estimating device and said second
focusing estimating device; and

5 wherein said camera body incorporates said first focusing estimating device and said selecting device, while said lens barrel incorporates said second focusing estimating device and said moving device.

a camera body for generating an electric signal
based on an image form on an imaging surface;

a first focusing estimating device for creating focusing data for focusing an image on the imaging surface upon the object on the basis of a level of a frequency component selected from the electric signal;

a second focusing estimating device having a

second image forming lens for forming the other light beam of the light beams split by said beam splitting element into an image, at least one pair of image re-forming lenses for respectively re-forming, into
5 images, the light beams emerging from the object which beams have been image-formed by said second image forming lens, and an imaging element for picking up the images obtained by at least said one pair of image re-forming lenses, said second focusing estimating device
10 creating an item of focusing data for focusing the image on the imaging surface upon the object on the basis of an imaging positional deviation on said imaging element between the images obtained by at least said one pair of image re-forming lenses;

15 a selecting device for selecting at least one of said first focusing estimating device and said second focusing estimating device; and

a moving device for moving said focus adjusting lens on the basis of the focusing data created by said
20 focusing estimating device selected by said selecting device,

wherein said camera body incorporates said first focusing estimating device, while said lens barrel incorporates said second focusing estimating device,
25 said selecting device and said moving device.

36. The camera according to claim 34, wherein

said selecting device selects said first focusing
estimating device if the imaging positional deviation
detected by said positional deviation detecting device
is under a predetermined value, and selects said second
5 focusing estimating device if larger than the
predetermined value.

37. The camera according to claim 35, wherein
said selecting device selects said first focusing
10 estimating device if the imaging positional deviation
detected by said positional deviation detecting device
is under the predetermined value, and selects said
second focusing estimating device if larger than the
predetermined value.

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38. A camera comprising:

a camera body for picking up an image formed on a
predetermined plane; and

a lens barrel comprising a photographing optical
20 system, having a focus adjusting lens disposed movably,
for guiding the light beam incident on said focus
adjusting lens and emerging from an object onto the
predetermined plane,

said camera body containing identification data
25 indicating whether or not said camera body has a first
focusing estimating device for creating focusing data
for focusing the image on the predetermined plane upon

said lens barrel further comprising:

predetermined plane upon the object;

a selecting device for selecting said second focusing estimating device when said judging device judges that said camera body does not have said first focusing estimating device, and selecting at least one of said first focusing estimating device and said second focusing estimating device when said judging device judges that said camera body has said first focusing estimating device; and

39. A camera comprising:

a lens barrel comprising a photographing optical system having a focus adjusting lens disposed movably, a beam splitting element for splitting light beams

incident on said focus adjusting lens and emerging from
an object, and a first image forming lens for forming
one light beam of the light beams split by said beam
splitting element into an image, said photographing
5 optical system guiding the light beam incident on said
first image forming lens and emerging from the object
onto the imaging surface,

said camera body containing identification data
indicating whether or not said camera body has a first
10 focusing estimating device for creating focusing data
for focusing the image on the imaging surface upon the
object on the basis of a level of a predetermined
frequency component selected from the electric signal,

said lens barrel further comprising:

15 a second focusing estimating device having a
second image forming lens for forming the other light
beam of the light beams split by said beam splitting
element into an image, at least one pair of image re-
forming lenses for respectively re-forming, into
20 images, the light beams emerging from the object which
beams have been image-formed by said second image
forming lens, and an imaging element for picking up the
images obtained by at least said one pair of image re-
forming lenses, said second focusing estimating device
25 creating an item of focusing data for focusing the
image on the imaging surface upon the object on the
basis of the imaging positional deviation on said

a judging device for judging whether or not said camera body has said first focusing estimating device on the basis of the identification data;

a moving device for moving the focus adjusting lens on the basis of the focusing data created by said focusing estimating device selected by said selecting device.

40. The camera according to claim 39, wherein said focusing estimation selecting device, when said judging device judges that said camera body has said first focusing estimating device, selects said first focusing estimating device if the imaging positional deviation detected by said positional deviation detecting device is under a predetermined value, and selects said second focusing estimating device if larger than the predetermined value.

41. A lens barrel attachable to a camera body for generating an electric signal based on an image formed on an imaging surface,

said lens barrel comprising:

5 a photographing optical system having a focus adjusting lens disposed movably, and an image forming lens for forming a light beam incident on said focus adjusting lens and emerging from an object into an image, said photographing optical system guiding the
10 light beam incident on said image forming lens and emerging from the object onto the imaging surface;

a focusing estimating device for creating an item of focusing data for focusing the image on the imaging surface upon the object on the basis of a level of a
15 predetermined frequency component selected from the electric signal; and

a moving device for moving the focus adjusting lens on the basis of the focusing data created by said focusing estimating device.
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42. A lens barrel attachable to a camera body for picking up an image formed on a predetermined plane,

said lens barrel comprising:

a photographing optical system having a focus
25 adjusting lens disposed movably, a beam splitting element for splitting light beams incident on said focus adjusting lens and emerging from an object, and a

first image forming lens for forming one light beam of
the light beams split by said beam splitting element
into an image, said photographing optical system
guiding the light beam incident on said first image
5 forming lens and emerging from the object onto the
predetermined plane;

a focusing estimating device having a second image
forming lens for forming the other light beam of the
light beams split by said beam splitting element into
10 an image, at least one pair of image re-forming lenses
for respectively re-forming, into images, the light
beams emerging from the object which beams have been
image-formed by said second image forming lens, and an
imaging element for picking up the images obtained by
15 at least said one pair of image re-forming lenses, said
focusing estimating device creating an item of focusing
data for focusing the image on the predetermined plane
upon the object on the basis of the imaging positional
deviation on said imaging element between the images
20 obtained by at least said one pair of image re-forming
lenses; and

a moving device for moving said focus adjusting
lens on the basis of the focusing data created by said
focusing estimating device.

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43. An autofocus apparatus comprising:

a photographing optical system having at least a

focus adjusting lens disposed movably and an image forming lens for forming, into an image, light beams incident on said focus adjusting lens and emerging from an object;

5 a plurality of focusing estimating devices for creating focusing data for focusing an image formed on a predetermined plane through said photographing optical system, upon the object;

10 a storage device stored with a correction value for the focusing data created by at least one of said plurality of focusing estimating devices;

 a correcting device for correcting, with the correction value, the focusing data corresponding to the correction value stored in said storage device;

15 a selecting device for selecting at least one of said plurality of focusing estimating devices; and

 a moving device for moving said focus adjusting lens on the basis of the focusing data created by said focusing estimating device selected by said selecting device, or the relevant corrected focusing data if the relevant focusing data has been corrected by said correcting device.

44. An autofocus apparatus comprising:

25 a photographing optical system having at least a focus adjusting lens disposed movably, a beam splitting element for splitting light beams incident on said

focus adjusting lens and emerging from an object, a first image forming lens for forming one light beam of the light beams split by said beam splitting element into an image, and a second image forming lens for forming the other light beam of the light beams split by said beam splitting element into an image;

a first focusing estimating portion creating focusing data for focusing the image upon said object on a first plane on the basis of the image obtained by said first image forming lens;

a second focusing estimating portion having a data detecting device for detecting an item of data for focusing the image obtained by said second image forming lens upon the object on a second plane, a storage device stored with the data detected by said data detecting device as a correction value when the image obtained by said first image forming lens is focused on the object on the first plane, and a data creating device for correcting the data detected by said data detecting device on the basis of the correction value stored in said storage device and for creating an item of focusing data for focusing the image obtained by said first image forming lens upon said object on the first plane;

a selecting portion for selecting at least one of said first focusing estimating portion and said second focusing estimating portion; and

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a first focusing estimating portion having a first imaging element for picking up the image obtained by

said first image forming lens and converting it into an electric signal, a level detecting device for detecting a level of a proper frequency component from the electric signal obtained by said first imaging element, and a first data creating device for creating an item of focusing data for focusing the image on said first imaging element upon the object on the basis of the frequency component level detected by said level detecting device;

10 a second focusing estimating portion having an image re-forming optical system for respectively re-forming, into images, the light beams passing through portions with different pupils among the light beams for forming the image formed by said second image forming lens, a second imaging element for picking up the images obtained by said image re-forming optical system, a positional deviation detecting device for detecting an imaging positional deviation on said second imaging element, a storage device stored, as a correction value, with the imaging positional deviation detected by said positional deviation detecting device when the image on said first imaging element is focused on the object, a correcting device for correcting, with the correction value stored in said storage device, the imaging positional deviation detected by said positional deviation detecting device, and a second data creating device for creating an item of focusing

5 a selecting portion for selecting at least one of
said first focusing estimating portion and said second
focusing estimating portion; and

47. The autofocus apparatus according to claim
46, further comprising:

48. The autofocus apparatus according to claim 46, wherein said selecting portion selects said first focusing estimating portion if the imaging positional deviation detected by said positional deviation detecting device is under a predetermined value, and

selects said second focusing estimating portion if larger than the predetermined value.

49. An autofocus apparatus comprising:

5 a photographing optical system having at least a focus adjusting lens disposed movably, and an image forming lens so movably disposed as to form light beams incident on said focus adjusting lens and emerging from an object into an image;

10 a plurality of focusing estimating devices for creating focusing data for focusing an image formed on a predetermined plane through said photographing optical system upon the object;

15 a position detecting device for detecting positional data of said image forming lens;

20 a correcting device for correcting the focusing data created by at least one of said plurality of focusing estimating devices on the basis of the data about the position detected by said position detecting device;

a selecting device for selecting at least one of said plurality of focusing estimating devices; and

25 a moving device for moving said focus adjusting lens on the basis of the focusing data created by said focusing estimating device selected by said selecting device, or the relevant corrected focusing data if the relevant focusing data has been corrected by said

correcting device.

50. An autofocus apparatus comprising:

a photographing optical system having at least a
5 focus adjusting lens disposed movably, a beam splitting
element for splitting light beams incident on said
focus adjusting lens and emerging from an object, a
first image forming lens for forming one light beam of
the light beams split by said beam splitting element
10 into an image, and a second image forming lens for
forming the other light beam of the light beams split
by said beam splitting element into an image;

a first focusing estimating portion for creating
the focusing data for focusing the image obtained by
15 said first image forming lens upon the object on a
first plane on the basis of the image obtained by said
first image forming lens;

a second focusing estimating portion having a data
detecting device for detecting the data for focusing
20 the image obtained by said second image forming lens
upon the object on a second plane, a position detecting
device for detecting the position data of said first
image forming lens, a correcting device for correcting
the data detected by said data detecting device on the
25 basis of an item of data corresponding to the data
about the position of said first image forming lens
that has been detected by said position detecting

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device, which item of data is obtained from a relationship between the position of said first image forming lens and the data detected by said data detecting device when the image on the first plane is focused on the object, and a data creating device for creating focusing data for focusing the image obtained by said first image forming lens upon the object on the first plane;

a selecting portion for selecting at least one of said first focusing estimating portion and said second focusing estimating portion; and

a moving device for moving said focus adjusting lens on the basis of the focusing data created by said focusing estimating device selected by said selecting portion.

51. An autofocus apparatus comprising:

a photographing optical system having at least a focus adjusting lens disposed movably, a beam splitting element for splitting light beams incident on said focus adjusting lens and emerging from an object, a first image forming lens for forming one light beam of the light beams split by said beam splitting element into an image, and a second image forming lens for forming the other light beam of the light beams split by said beam splitting element into an image;

a first focusing estimating portion for picking up

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15 a second focusing estimating portion having an
image re-forming optical system for respectively re-
forming, into images, the light beams passing through
portions with different pupils among the light beams
for forming the image formed by said second image
forming lens, a second imaging element for picking up
the images obtained by said image re-forming optical
system, a positional deviation detecting device for
20 detecting an imaging positional deviation on said
second imaging element, a correcting device for
correcting a position of said image forming lens on the
basis of an item of position data of said second image
forming lens that corresponds to data about the
25 position, detected by said position detecting device,
of said first image forming lens, which item of
position data is obtained from such a relationship

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detecting device is under a predetermined value, and selects said second focusing estimating portion if larger than the predetermined value.